

WOOD SCIENCE

Unit-I

Microscopic structure of wood: Vessels, Tyloses, Tracheids, Fibres, Wood parenchyma - Wood rays, Grain and Texture. Organisation of the cell wall - Microfibril - Orientation, cell wall pit - structure. Identification and classification of wood.

Unit-II

Chemical composition of wood, structure and properties of Cellulose - Hemicellulose - Wood polysaccharides and Lignin. Distribution of chemical constituents in wood. Physical properties of wood - Colour - Lustre - Fluorescence - Odour and Weight.

Unit-III

Mechanical properties of wood - Bending properties - Composition - Hardness - Shear. Properties of Dicot and Monocot wood. Growth rings in wood - Annual rings, early wood and late wood, soft wood and hard wood, pycnoxylic and manoxylic wood. Dendro - Chronology.

Unit-IV

Defects of wood - Knots - Reaction wood - Compression and tension wood - Cross-grain - variation in log form - shake - pitch pocket - Drying crack and Logging injury. Defects in seasoning and machining of wood, Defects due to weathering - Defects of wood due to fungi and insects.

Unit-V

Natural durability of wood - Wood preservation - Non-pressure processes - Pressure process - Chemical processing of wood - Commercial wood species and identification, Synthetic woods, Marine plywood, Fuel wood, pulp and paper making woods, match-stick wood. Economic importance of pulp and wood.

References

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Note: No Practical for this paper.